SNOW BLOWER, SELF-CONTAINED, ROTARY,
QUICK COUPLED LOADER MOUNT ATTACHMENT
KODIAK NORTHWEST - MODEL LMSC44/48

It is the intent of these specifications to describe a 3500-ton per hour Rotary Snowplow unit for mounting on the front-end loader specified in the performance specifications for the 2005 Caterpillar 980H Wheel Loader. This unit is to be a self-contained unit, with plow and engine as one integral unit. Assembly shall be attached directly to the loader quick coupler lifting mechanism without additional weldments or attachments to the Loader. The snow-blower will be mounted on a minimum 3.5 yard front end loader, therefore weight and center of gravity will be of primary importance, a maximum weight of 14,500 lbs and a center of gravity of not more than 32 inches from the center of the lower mounting pins on the loader, will be acceptable.

1. CAPACITY: The blower head shall have a cutting width no less than 136”. Prototypes of this assembly shall not be accepted.

The unit shall be capable of the following performance and capacities:
Elevation: approximately 6,000 feet above sea level.

Weight of Snow: Approximately 25 lbs. per cubic foot.

Condition of Snow: Undisturbed.

Casting Distance: Not less than 80 feet, full throttle operation.

Snow Cutting Depth: Not less than 57 inches.

2. GENERAL ASSEMBLY: The Rotary Plow shall consist of a two-stage assembly. The fist stage shall be composed of helically curved blades capable of cutting, gathering and feeding the snow to the second stage (or fan), which will discharge the snow through a directional chute.

3. The material in the cutter head subject to abrasion, such as back and end plates shall be high strength steel. All welds shall have the equivalent strength of the

adjacent material.

The first stage shall have no more than one right and one left hand ribbon-type helical blade assemblies of equal length. The diameter of the first stage helical blades shall be no less than 44 inches. The diameter of the second stage or blower fan to be no less than 48 inches. Each end of the helical blade assembly shall be equipped with an outer ring (wiper ring assembly), to be bolted to each end of the helical blade assembly, and be constructed of the same thickness and type of material as the helical cutter blades. The plow must be designed and constructed so that the snow is fed into the discharging fan by mechanical means and not dependant upon the forward motion of the Plow to force snow into the discharging mechanism (or fan). The impeller fan shall be no less than four blades, rotating disc design. Blades shall be a minimum of 3/8" steel material.

The first stage reel assembly shall be of two-piece construction. Final drive and reduction shall be driven from the center using a center-mounted gearbox incorporating hardened helical gearing. The first stage reel shall be supported by shaft size of no less than 3-15/16".

Discharge fan shall be mounted in the approximate center of the Rotary Plow front.

Flights on the reel to be shaped from no less than 3/8 " x 5" T-1 steel, Type A, minimum hardness of 321 Brinell, cold formed. Heating of flights to facilitate forming is not acceptable. Each flight is to be supported by no less than two supports per flight.

The impeller (or fan) housing shall be no less than 1/4" thickness of same material as fan blades. Housing shall be capable of directing snow to the left or to right and to any desired angle of discharge through an intermediate vertical arc of no less than 140 degrees.

The lower cutting edge of the Rotary head shall be equipped with a replaceable scraper blade of high carbon steel. Rear, inner shoes shall be adjustable-height shoe carriers fitted with bolt-on alloy steel, mushroom-type wearing

shoes, so as to control contact with the surface. Height of shoes shall be adjustable without removal of shims or bolts.

Two cutter bars shall be furnished, one attached to each side of the Rotary Plow box, extending up and forward to a total height of no less than (8) feet from the surface. Cutter bars shall be securely attached and braced to withstand side and forward thrust.

4. DISCHARGE CHUTE: The discharge opening shall be designed to direct snow to the right or left side and to any desired angle of discharge through an intermediate vertical arc of no less than 140 degrees. A telescoping loading chute that can rotate through a minimum of 270 degrees horizontal rotation, and be capable of loading a vehicle with sideboards not less than (8) feet above surface. Chute shall operate hydraulically, with controls in cab of Loader, easily accessible to the operator.

5. CONTROLS: All Rotary Plow controls shall be located in the Loader cab and shall be readily accessible to one operator. All controls and switches shall be legibly labeled and illuminated.

6. HYDRAULICS: Hydraulic pump shall be of sufficient size and capacity to operate all necessary functions and shall be controlled from the cab by the operator. Hydraulic hoses shall be Arctic rated.

7. ENGINE: Engine supplied shall be Cat C-11 turbo charged diesel with a minimum of 425-horse power. The engine shall be a full electronic package and shall be equipped with manual shutdown controls to the operator's cab. It shall be equipped with two stage, dry-type air cleaner of factory approved size.

The engine shall be equipped with all standard commercial accessories, to include 120 vac block heater, except that in lieu of standard accessories the following shall be supplied:

a. Standard oil pan for 6 degrees operating angle.

b. Metered ether aid, operated from cab of Loader.

c. Engine tachometer with the indicator mounted in Loader cab where it may be readily observed by the operator.

d. Full-flow, replaceable element oil filter.

e. The air cleaner service indicator shall be installed with a check valve and show a continuous warning when the dry paper element needs servicing. The air cleaner shall be located in a protected, yet readily observed position, such as under a hood or compartment and the connecting tube to the air cleaner shall be rugged, dust and waterproof tubing mounted to withstand abrasion, wear, and vibration.

f. Shall be equipped with 180-degree thermostat.

g. Primary fuel filters/water separator (heated), Fuel capacity to be no less than 70 gallons.

h. Engine mounted electronic governor.

i. Radiator: Approved by engine manufacturer.

8. ROTARY PLOW DRIVE SYSTEM: Cutter ribbons and impeller shall be driven by an air-activated clutch with not less than three 14-inch Kevlar plates. The drive shall continue through a hy-vo chain and into right angle gearbox with helical gearing. The entire drive system shall by protected by shear pins from foreign objects when unit is in snow removal operation.

9. ENGINE HOUSING: The housing for the engine shall be fabricated from sheet metal not less than 14 gauge and equipped with side panels to permit access to the engine.

10. GENERAL: If not clearly specified, the following shall be provided:

a. ALL electrical systems concerned with the Rotary Plow must be plug-in, quick disconnect, Arctic rated waterproof type. All wiring to be encased in loom.

b. OVER-TEMPERATURE, low coolant level and low oil

pressure warning lights shall be provided.

c. UNIT shall be a standard production model. Special or altered equipment to meet these specifications will not be considered.

Manufacturer must have similar machines operating in an Arctic climate, displaying the ability of the snow blower to run effectively in this type of harsh environment.

WARRANTY/SERVICE

This Snow Blower unit and associated hardware shall be warranted by factory for a minimum of 12 months, parts and labor. Two operator’s manuals, two set of maintenance and repair manuals and two sets of parts manuals shall be supplied with the machine.